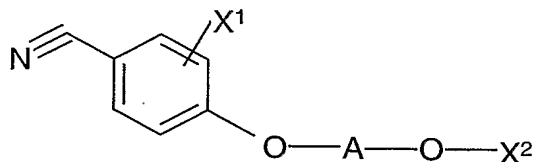


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## CLAIMS

What is claimed is:

1. A compound of the formula I:



the salts, solvates, and prodrugs thereof, in which;

- a)  $\text{X}^1$  is represented by halogen, cyano,  $\text{C}_1$ - $\text{C}_6$  alkoxy, haloalkoxy, or haloalkyl;
- b) A is represented by a linear alkylene group containing from 2 to 10 carbon atoms, in which up to 6 hydrogen atoms may optionally be replaced by a substituent independently selected from the group consisting of:
  - i. halogen,
  - ii. cyano,
  - iii. hydroxy,
  - iv.  $(\text{C}_1$ - $\text{C}_{12})$ alkyl, optionally substituted,
  - v.  $(\text{C}_2$ - $\text{C}_{12})$ alkenyl, optionally substituted,
  - vi.  $(\text{C}_2$ - $\text{C}_{12})$ alkynyl, optionally substituted,
  - vii.  $(\text{C}_3$ - $\text{C}_{10})$ cycloalkyl, optionally substituted,
  - viii.  $(\text{C}_3$ - $\text{C}_{10})$  cycloalkyl( $\text{C}_1$ - $\text{C}_6$ )alkyl, in which the alkyl and cycloalkyl moieties may each be optionally substituted,
  - ix.  $(\text{CH}_2)_n\text{-SR}^1$ ,
  - x.  $(\text{CH}_2)_n\text{-O-R}^1$ ,
  - xi.  $(\text{CH}_2)_n\text{-NR}^1\text{R}^2$ ,
  - xii.  $(\text{CH}_2)_n\text{-COOR}^3$  and,
  - xiii.  $(\text{CH}_2)_n\text{-CONR}^4$ ;
- c)  $\text{X}^2$  is represented by  $(\text{C}_6$ - $\text{C}_{10})$ aryl, optionally substituted;
- d) n, at each occurrence, is independently represented by an integer from 0 to 6;

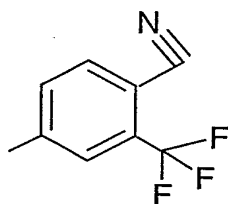
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- 5 e)  $R^1$  and  $R^2$  are each independently represented by a substituent selected from the group consisting of hydrogen and  $(C_1-C_6)$ alkyl, optionally substituted;
- f)  $R^3$  is represented by a substituent selected from the group consisting of hydrogen, and  $(C_1-C_6)$ alkyl, optionally substituted, and;
- g)  $R^4$  is represented by a substituent selected from the group consisting of hydrogen, and  $(C_1-C_6)$ alkyl, optionally substituted.

10 2. A compound according to claim 1 in which A is represented by ethylene, propylene, butylenes, or pentylene, any of which may be optionally substituted.

15 3. A compound according to claim 1 or 2 in which  $X^1$  is trifluoromethyl or chloro and is located at the 3-position of the phenyl ring.

4. A compound according to claim 1, 2, or 3 in which  $X^2$  is represented by:



20 5. A compound according to claim 1, 2, 3, or 4 in which A is ethylene or propylene and is substituted with at least one substituent represented by  $(CH_2)_n-O-R^1$  or  $(C_1-C_6)$ alkyl.

25 6. A compound according to claim 1 selected from the group consisting of:

- a. 4,4'-[(2S,3S)-butane-2,3-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile]
- b. 4,4'-[(2R,3R)-butane-2,3-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- 30 c. 4,4'-[but-1-ene-3,4-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];

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- 5
- d. 4,4'-[pentane-1,2-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- e. 4,4'-[(3-methoxypropane-1,2-diyl)bis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- 10
- f. 4,4'-[(3-ethoxypropane-1,2-diyl)bis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- g. 4,4'-[[3-(isopropylamino)propane-1,2-diyl]bis[2-(trifluoromethyl)benzonitrile];
- 15
- h. 4,4'-[(6-methylhexane-1,2-diyl)bis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- i. 4,4'-[octane-1,2-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- j. 4-[1-(4-Cyano-3-trifluoromethyl-phenoxy)methyl]-2,2-dimethyl-cyclopropoxy]-2-trifluoromethyl-benzonitrile;
- 20
- k. 4,4'-[Propane-1,3-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- l. 4,4'-[(2-methylpropane-1,3-diyl)bis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- 25
- m. 4,4'-[butane-1,3-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- n. 4-(((3R)-3-[4-cyano-3-(trifluoromethyl)phenoxy]butyl)oxy)-2-(trifluoromethyl)benzonitrile;
- 30
- o. 4-(((3S)-3-[4-cyano-3-(trifluoromethyl)phenoxy]butyl)oxy)-2-(trifluoromethyl)benzonitrile;
- p. 4-{3-[4-cyano-3-(trifluoromethyl)phenoxy]-1,2-dimethylpropoxy}-2-(trifluoromethyl)benzonitrile;
- 35
- q. 4,4'-[hex-1-ene-4,6-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];

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- 5           r. 4,4'-[(3-methylbutane-1,3-diyl)bis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- s. 4-[[3-(4-cyanophenoxy)-2-ethylhexyl]oxy]bis[2-(trifluoromethyl)benzonitrile];
- 10          t. 4,4'-[(2S,4S)-pentane-2,4-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- u. 4,4'-[heptane-1,4-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- v. 4,4'-[hexane-2,5-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- 15          w. 4,4'-[(2S,5S)-hexane-2,5-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- x. 4-({5-[4-cyano-2-(trifluoromethyl)phenoxy]pentyl}oxy)-2-(trifluoromethyl)benzonitrile;
- 20          y. 4,4'-[hexane-1,5-diylbis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- z. 4,4'-[(3-methylpentane-1,5-diyl)bis(oxy)]bis[2-(trifluoromethyl)benzonitrile];
- 25          aa. 4-(1-methoxymethyl-2-phenoxy-ethoxy)-2-trifluoromethylbenzonitrile;
- bb. 4-(1-hydroxymethyl-2-phenoxy-ethoxy)-2-trifluoromethylbenzonitrile;
- 30          cc. (1R)-4-(1-hydroxymethyl-2-phenoxy-ethoxy)-2-trifluoromethylbenzonitrile;
- 35          dd. (1R)-4-(1-methoxymethyl-2-phenoxy-ethoxy)-2-trifluoromethylbenzonitrile;

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- ee. (1S)-4-(1-methoxymethyl-2-phenoxy-ethoxy)-2-trifluoromethyl-benzonitrile;
- 5 ff. 2-chloro-4-(2-methoxy-1-phenoxy-methyl-ethoxy)-benzonitrile;
- gg. 2-chloro-4-(1-phenoxy-methyl-butoxy)-benzonitrile;
- 10 hh. 2-chloro-4-(1-phenoxy-methyl-propoxy)-benzonitrile;
- ii. 2-chloro-4-(1-phenoxy-methyl-butoxy)-benzonitrile;
- jj. 2-chloro-4-[1-(4-methoxy-phenoxy-methyl-propoxy)-benzonitrile;
- 15 kk. 2-chloro-4-[1-(2-methoxy-phenoxy-methyl-propoxy)-benzonitrile;
- ll. 2-chloro-4-[1-methyl-phenoxy-ethoxy)-benzonitrile;
- mm. 4-[4-(4-cyano-3-trifluoromethyl-phenoxy)- 2-hydroxy-butyloxy]-2-  
20 trifluoromethyl-benzonitrile;
- nn. 4-[3-(4-cyano-3-trifluoromethyl-phenoxy)- 2-cyclohexyl-propyloxy]-  
2-trifluoromethyl-benzonitrile;
- 25 oo. 4-[3-(4-cyano-3-trifluoromethyl-phenoxy)- 2-cyclohexyl-propyloxy]-  
2-trifluoromethyl-benzonitrile;
- pp. 4-[3-(4-cyano-3-trifluoromethyl-phenoxy)- 2-chloro-propyloxy]-2-  
30 trifluoromethyl-benzonitrile;
- qq. 4-[8-(4-cyano-3-trifluoromethyl-phenoxy)- 2-chloro-4-hydroxy-  
octyloxy]-2-trifluoromethyl-benzonitrile;
- rr. 4-[10-(4-cyano-3-trifluoromethyl-phenoxy)- 2-methylcyclopentyl-  
35 octyloxy]-2-trifluoromethyl-benzonitrile;

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ss. 4-[10-(4-cyano-3-trifluoromethyl-phenoxy)- decyloxy]-2-trifluoromethyl-benzonitrile;

5 tt. 4-[7-(4-cyano-3-trifluoromethyl-phenoxy)-2-cyano-4-methyl-6-hydroxy-heptyloxy]-2-trifluoromethyl-benzonitrile;

uu. 4-(3-(3-hydroxy-4-fluoro-phenoxy)-propoxy)-2-trifluoromethyl-benzonitrile;

10 vv. 4-(2-cyano-4-dimethylamino-8-phenoxy-octyloxy)-2-trifluoromethyl-benzonitrile;

ww. 4-(2-dimethylamino-2-(4-cyano-phenoxy)-ethyloxy)-2-trifluoromethyl-benzonitrile;

15 xx. 4-(1-cyclopentyloxymethyl-3-(4-hydroxy-phenoxy)-propoxy)-2-trifluoromethyl-benzonitrile; and

yy. 4-(2-methyl-4-dimethylamino-8-phenoxy-octyloxy)-2-trifluoromethyl-benzonitrile.

20 7. Use of a compound according to any one of claims 1-6 as a medicine.

25 8. Use of a compound according to any one of claims 1-6 in the manufacture of a medicament for inhibiting activation of the androgen receptor.

30 9. Use of a compound according to any one of claims 1-6 in the manufacture of a medicament for alleviating a condition selected from the group consisting of hormone dependent cancers, benign hyperplasia of the prostate, acne, hirsutism, excess sebum, alopecia, premenstrual syndrome, lung cancer, precocious puberty, osteoporosis, hypogonadism, age-related decrease in muscle mass, and anemia.

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10. A pharmaceutical composition comprising a compound according to any one of claims 1-6 in admixture with one or more pharmaceutically acceptable excipients.
- 5 11. A topical pharmaceutical formulation comprising a compound according to any one of claims 1-6 in admixture with or more pharmaceutically acceptable excipients suitable for dermal application.
- 10 12. An article of manufacture comprising a compound according to any one of claims 1-6 packaged for retail distribution, which advises a consumer how to utilize the compound to alleviate a condition selected from the group consisting of acne, alopecia, and oily skin.

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